

Amendments to the Drawings:

The attached sheet of drawings includes changes to FIG. 1. This sheet, which includes FIG. 1, replaces the original sheet including FIG. 1. This drawing includes evaluation unit 15 originally disclosed in the claims. No new matter has been added.

Attachment: Replacement Sheet

REMARKS/ARGUMENTS

Reconsideration of this patent application is respectfully requested in view of the foregoing amendments and the following remarks.

The Examiner has objected to the drawings. FIG. 1 has been amended to overcome this objection.

The Examiner has objected to the Specification. The specification has been amended to overcome these objections. In particular, a substitute specification including all of the changes requested is enclosed. A marked up copy is also enclosed.

The Examiner has objected to claims 2 and 12. In addition, the Examiner has rejected claims 1-12. Claims 1-12 have been canceled without prejudice. New claims 13-27 have been inserted therefor. Claims 13-24 are similar in subject matter to old claims 1-12 now canceled. New claims 25-27 include individual features of claim 2 which was previously on file but is now canceled. No new matter has been added.

The Examiner has rejected claims 1-12 as being unpatentable over U.S. Patent No. 6,057,523 to *Fuji et al* in view of U.S. Patent No. 3,940,624 to *Simmons*.

The Examiner admits that *Fuji et al* does not disclose the use of a strip or foil in combination with the detection means to monitor spot welds as recited in claim 13. However, the Examiner states that it would be obvious to combine the disclosure of *Fuji et al* with the teaching of *Simmons* to measure and indicate the transfer characteristics, including the heat transfer characteristic of the spot weld.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

It is respectfully submitted that the reference to *Fuji et al* discloses the method of controlling welding conditions of a resistance welder. *Fuji et al* does not disclose the use of the strip or foil in combination with the detection means to monitor spot welds.

With reference to *Simmons*, this disclosure describes a method and a device for monitoring welds by radiating an infrared light source to the welding site and optically detecting the resulting reflected or transmitted radiation. With this disclosure, the procedure uses a MYLAR® film that is drawn over the welding site with a liquid crystal. There is a resulting change in the liquid crystal that is brought about by the heat related from the welding site that is optically detected. With this procedure, the components itself or the liquid crystal

display, which is not stable is evaluated, thus necessitating site related and time related measurements.

It is respectfully submitted that neither the *Fuji et al* reference or the *Simmons* reference discloses a method for monitoring the quality of spot welds, where a strip or foil is inserted between the electrodes or electric caps and work pieces during the welding process. In contrast with the present invention as claimed in claim 13, there is a proportional image or reproduction of each welding spot, which is produced on the strip or foil. By conveying the strip of foil on after a welding process, accuracy is safeguarded such that only a single reproduction of a welding spot will always be defined in the strip area.

With the present invention as claimed claim 13, the welding spot on the workpiece for the metal sheet itself, is not evaluated, but rather a new image reproduction of the welding spot. This process is so that the evaluation can be performed in a locally unrestricted manner.

In this case, with relatively large work pieces, the method according to *Simmons*, requires a manipulation of the workpiece. In contrast, with the method according to the present invention, the strip of foil can be easily transferred to an evaluation unit and thus the quality of each welding spot can then be determined separate from the welded piece regardless of the size of the work piece.

It is respectfully submitted that the references to *Fuji et al* and *Simmons* alone, do not suggest the above identified invention. In addition, it is respectfully submitted that there is no suggestion to combine these references together to arrive at the present invention as claimed in claim 13. Therefore, it is respectfully submitted that claim 13 is patentable over the above cited references taken either singly or in combination.

The Examiner has rejected claims 1-3, 5, 6 and 8-12 under 35 U.S.C. 103(a) as being unpatentable in view of *Fuji*, in view of *Watanabe et al*.

It is respectfully submitted that the differences between the present invention as claimed in claim 13 and *Fuji et al* have

been discussed above. With respect to *Watanabe et al*, this patent discloses a method for detecting spot welding defects, whereby there is an intermediate resin layer disposed between the workpieces. With this process well, weld defects are detected by measuring a current between the electrodes. This process makes it necessary to put the resin layer between the workpieces which is impossible in much can most cases. In contrast the present invention as claimed in claim 13 states that the strip is placed between the electrode and the metal sheets which is entirely different from that of *Watanabe et al*. Thus, the present invention is a large improvement over *Watanabe et al* because with the process of *Watanabe et al*, it is impossible to evaluate the quality of each welding spot.

Thus, it is respectfully submitted that the remaining claims are not obvious in view of the combination of *Fuji et al* and *Watanabe et al*.

The Examiner has rejected claims 1-3, 6 and 8-12 under 35 U.S.C. 103 as being unpatentable over *Fuji et al* in view of *Mueller*.

Claims 1-12 have been canceled without prejudice. In addition, the differences between the present invention as recited in claim 13, and *Fuji et al* have been discussed above. Furthermore, it is respectfully submitted that the present invention as claimed in claim 13 is entirely different from the process as disclosed in *Mueller* or the combination of *Fuji et al* and *Mueller*. For example, *Mueller* discloses a welding device wherein the electrodes and electric caps are protected in the tip area against surface damage by means of a foil strip. However, *Mueller* does not show or teach a method for monitoring the quality of the spot weld. The unique measurements that can be taken based upon the process according to claim 13 are not contemplated by *Mueller*.

Therefore, it is respectfully submitted that the remaining claims are patentable over the above cited references taken either singly or in combination.

In summary, claim(s) 1-12 have been canceled and new claims 13-27 have been added. In view of the foregoing, it is respectfully requested that the claims be allowed and that this case be passed to issue.




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Applicant respectfully request that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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Enclosure(s):